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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/375,614	08/17/1999	ANNA LEE Y. TONKOVICH	B-1479	5345

7590

12/03/2001

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EXAMINER

LANGEL, WAYNE A

ART UNIT

PAPER NUMBER

1754

DATE MAILED: 12/03/2001

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Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No. 375614	Applicant(s) Tonkovich et al
Examiner Langel	Group Art Unit 1754

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Response

A SHORTENED STATUTORY PERIOD FOR RESPONSE IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a response be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for response specified above is less than thirty (30) days, a response within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for response is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to respond within the set or extended period for response will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- ☒ Responsive to communication(s) filed on 9-20-91
- ☐ This action is **FINAL**.
- ☐ Since this application is in condition for allowance except for formal matters, **prosecution as to the merits is closed** in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-15 is/are pending in the application.
- Of the above claim(s) 1-9 and 15 is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 10-14 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement.

Application Papers

- ☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- ☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been received.
- ☐ received in Application No. (Series Code/Serial Number) _____.
- ☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____

Attachment(s)

- ☒ Information Disclosure Statement(s), PTO-1449, Paper No(s) 4
- ☒ Notice of References Cited, PTO-892
- ☒ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other _____

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The following is a quotation of the appropriate paragraphs of 35 U.S.C. § 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. § 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10 and 11 are rejected under 35 U.S.C. § 102(b) as being anticipated by van Wingerden et al. No distinction is seen between the process disclosed by van Wingerden et al., and that recited in claims 10 and 11. van Wingerden et al. disclose a method for catalytically reacting two gas phase reactants, wherein the gaseous reactants pass through a catalyst material comprising a porous structure having a porosity that permits molecular diffusion therein, the porous structure defining at least a portion of at least one wall of a microchannel defining a bulk flow path through which the gaseous reactants pass. (See

column 5, lines 6-27 and Figure 1 and the description thereof at column 10, lines 48-62, particularly Figure 1a.) van Wingerden et al. teach at column 8, lines 19-26 that the term "reactor wall" includes the walls of channels within the bed, through which heat exchange fluid can be passed. It is clear from Figure 1a of van Wingerden et al. that the catalyst material comprises a plurality of microchannels, especially since van Wingerden et al. teach at column 8, lines 36-44 that preferred values for the porosity range of the particles ranges between 40 and 85% by volume. Regarding claim 11, van Wingerden et al. disclose at column 2, lines 10-16 that the method may be used for methane-steam reforming.

Claims 12-14 are rejected under 35 U.S.C. § 103(a) as being unpatentable over van Wingerden et al. Regarding claim 12, it would be prima facie obvious to employ a gas hourly space velocity greater than 10,000 corresponding to a residence time less than 1 second in the process of van Wingerden et al., since van Wingerden et al. teach at column 9, lines 18-23 that the reactor permits using a much higher velocity of the reactants because the catalyst particles are much better fixed. Regarding claims 13 and 14, it would be prima facie obvious to provide at least one heat transfer microchannel adjacent the reactor microchannel in the reactor of van Wingerden et al., or to provide heat transfer fluid flow in a cross-current relationship

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to one of the gas phase reactants in the process, since van Wingerden et al. teach at column 8, lines 45-54 that the rate of heat transfer is a relatively important factor in the catalyst systems according to the invention.

Claim 11 is rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. It is indefinite as to whether the term "CO₂ reforming partial oxidation" is one member of the Markush group or two, since there is no comma (,) after the second occurrence of "reforming" in line 2.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Wayne A. Langel whose telephone number is (703) 308-0248. The examiner can normally be reached on Monday through Friday from 8 A.M. to 3:30 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steven Griffin, can be reached on (703) 308-1164. The fax phone number for this Group is (703) 305-7718.

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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-2351.

WAL:cdc

November 27, 2001

Wayne A. Langel
WAYNE LANGEL
PRIMARY EXAMINER
GROUP 110